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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/340,718	06/29/1999	YOSHIAKI KUROKAWA	032590-025	4267

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EXAMINER

TAYLOR, LARRY D

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/340,718

Applicant(s)

KUROKAWA ET AL. 

Examiner

Larry D Taylor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-6, 11-24, 35 and 39 is/are allowed.
- 6) ☒ Claim(s) 1, 7-10, 25-34, 36-38, and 40-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

DETAILED ACTION

Receipt of Preliminary Amendment

1. Receipt is acknowledged of the pre-amendment filed 22 June 1999.

Claim Rejections - 35 USC § 112

2. Claims 1, 16, and 27-29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Regarding the claims, the phrase "waveguide type" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like" or "type"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
5. Claims 1, 7-10, 25, 27-34, 36-38, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanno (US 5,218,594, as cited by applicant) in view of Cato et al. (US 4,548,463) and Jacobowitz et al. (US 5,740,145).

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Tanno teaches an apparatus for reading data recorded on an information recording medium (an optical disk) comprised of laminated layers, comprising: a light source 35 for injecting light on an edge of coupling elements (windows) 30, of a multi-planar waveguide 31, assembled into the disk; converging lens 41 and 42 for focusing the light emitted from the light source; and a photodetector 39 for recording an image generated by the diffraction effects of guided waves produced by the waveguide.

Tanno fails to teach in addition to the apparatus an optical power detector and discrimination circuit, for detecting output light from an output edge of the waveguide.

Cato teaches an apparatus for scanning a holographic image of a medium, the apparatus containing a power detection circuitry 70 connected to detectors 38 and 40 (see figures 5 and 6). Laser 66 emits light to a data medium 14, the light is impinged onto a hologram present within the surface 12 of the medium, and diffracted, holographic image light is reflected to detectors 38 and 40. The detectors would collect the all light reflected from the disk, inclusive of the light directly from the hologram. The circuitry can determine the diffraction efficiency of light emitted from the hologram (see col. 5, line 60+). Depending upon the level of power determined by the detector, the circuitry would be able to deduce and discriminate if the light collected is from the outputted image light or other light reflected from the medium. It would have been obvious to one of ordinary skill in the art to provide a power detector with the apparatus of Tanno, as the circuitry provides a solution to the problem of fluctuations in the power levels of the light returned from the medium, as the quality of the layers of disks can vary. Having a power detector and discriminator allows the apparatus to recognize and possibly modify the power level of the light source in order to provide a more accurate and efficient image recording.

Tanno fails to teach an input-directing device for freely directing the converging lens as a unit so as to focus the light emitted by the source to a desired location. In addition, Tanno fails to teach: a separator/comparator means for separating and comparing frequency components contained in photoelectric signals produced by the returned light; a counting means for counting a number of traverses made by said signals across a predetermined threshold value; and aligning means for aligning the light source with the injection window by moving in an axial direction.

Jacobowitz teaches a system for scanning the surface of an optical disk, whereas a light source 10 emits light through lens 100 to disk 30 and the light is reflected back to a detector 40. Frequency components of the light are converted into electric signals and separated and compared by amplifiers 55,56 and block 57 (see figure 2). Figure 5 shows that circuitry is presented to count pulses made by the signals across a predetermined threshold found in detector 120. From the compared data, servo driver 200 can mechanically align the light emitted to the disk. Position information regarding the image can then be determined.

It would have been obvious to one of ordinary skill in the art to employ the teachings of Jacobowitz with the apparatus of Tanno, as such measures allow the apparatus to automatically adjust to the various types of media (disks) that may be presented for scanning. The automatic aligning and focusing capabilities afford operating convenience and versatility, in addition to improvement of data tracking accuracy upon the media.

Regarding claim 8, it would have been obvious to one of ordinary skill in the art to concurrently inject light into a plurality of windows of the medium, as that would merely entail a plurality of light sources. Having more than one light source would have been an obvious

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expedient as it would increase the amount of light to be converted into electric signals, thereby affording a more accurate reading of the image data of the medium.

Regarding claims 9 and 10, the figures of Tanno displaying the disk show that the disk has an outer and inner peripheral, interpreted as a top or bottom surface of the disk. It would have been obvious to fashion the apparatus to focus on either peripheral side, as it would merely be the method of “flipping” the disk on either side for scanning.

Regarding claims 25, 37, and 40, figures 7A-7D show a positioning spot that functions as a marker to correspond the light emitted from the light source of the apparatus with the light receiving windows of the medium.

6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanno as modified by Jacobowitz, in view of Kawai (US 5,235,661).

The teachings of Tanno as modified by Jacobowitz have been discussed above. However, the art does not teach the medium as embedded with a focusing lens.

Kawai teaches the optical reading of a planar medium, whereas the medium features embedded lens 211-214 (see figure 10).

It would have been obvious for the medium of the teachings of Tanno as modified by Jacobowitz to have an embedded lens, as it functions duplicately as the focusing lens of the apparatus, however alleviating the need to provide such a means within the apparatus. Such a maneuver reduces the cost of manufacturing a focusing lens within the apparatus, and the lens within the medium provides a more accurate reading upon the medium by the detection means of the apparatus.

Allowable Subject Matter

7. Claims 2-6, 11-24, 35, and 39 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter:
The prior art of record fails to teach or suggest the method for reading data from a recording medium as addressed in the independent claims, in addition to the medium having a longitudinally extending row of head seek grooves having respective light windows so as to permit an illumination head having a light output section to freely and physically travel within said grooves to couple with a desired light.

The art of record also fails to teach the apparatus for scanning the medium as having an extreme layer edge detection devices for determining positions of a front and rear waveguide, a layer edge detection device for determining positions or a front waveguide edge and a rear waveguide edge, and a layer position determining device for determining the position of a slanted surface associated with each edge, according to both said edge detection devices.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See Caulfield et al. (US 5,465,311) and Stoll (US 5,966,361).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Larry D Taylor whose telephone number is (703) 306-5867. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (703)-305-3503. The fax phone numbers for the

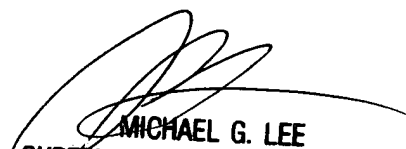
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.organization where this application or proceeding is assigned are (703)-746-4784 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Larry D Taylor
December 17, 2002.



MICHAEL G. LEE
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